The Journal of Teaching Language Skills (JTLS)
3(4), Winter 2012, Ser. 65/4
(Previously *Journal of Social Sciences & Humanities)*

Rhetorical Variation in Medical Article Abstracts Written in English and Persian

M. Talebinezhad *
Associate Professor
Islamic Azad University, Shahreza Branch
email: rtalebinezhad@shbu.ac.ir

Z. Arbabi
M. A., TEFL
Islamic Azad University, Shahreza Branch
email: arbabi385@yahoo.com

S. Taki
Assistant Professor
Islamic Azad University, Shahreza Branch
email: taki_saeed@yahoo.com

M. Akhlaghi
Associate Professor
Shahrekord University of Medical Sciences
email: akhlaghi236@yahoo.com

Abstract

The present study aimed at finding structural variations in the translated abstracts from Persian into English and comparing them with abstracts originally written in English and published in international journals in the area of medical sciences. To do this, 64 medical article abstracts (32 in Iranian journals, 32 in international journals) were analyzed and compared on the basis of Swales' model (1990). More detailed analysis was done in the Introduction unit regarding CARS model (Swales, 1990) and also language features of each unit were identified. The IMRC (Introduction, Methods, Results, Conclusion) sequence was considered as the structural conventions for the analysis. The results showed that in terms of structural units, there was a significant difference in using

Received: 7/24/2011 Accepted: 11/20/2011
* Corresponding author

the Methods unit between the two groups of abstracts (p= 0.002). Some variations were observed in the Introduction unit and language features. The data revealed that the translated abstracts from Persian into English in research medical articles meet the determined criteria for scientific writing while the original ones often ignore the criteria, although they are linguistically superior to the original English ones.

Keywords: abstract, IMRC sequence, CARS model, structural unit

1. Introduction

Scientific writing is increasingly becoming a topic of much concern and importance today. Writing a research article seems to be a confident way to disseminate the scientific achievements, to critic the other's works and more importantly to become a member of a discourse community especially those included in the Institute for Scientific Information (ISI) database (Swales & Feak, 2009). But here what is important is how to write an article to be accepted for publication in international journals. To this end, some conventions, constructions and even specific genres have been proposed by linguists (Swales, 1990; Bhatia, 1993; Swales & Feak, 2007) to achieve a unified structural function in English research articles.

Since a large number of scientific articles are written in languages other than English and due to the different nature of various languages, writing a research article in English would be a challenging task for non-native scientists (Kanoksilapatham, 2007). The interesting point is the relative lack of success among non-native English writers in the publication of their papers in international journals (Skelton 1994; Connor, 1996; Martin, 2003), and the main cause seems to be the difference in text structures.

A number of studies have focused on the generic characteristics of research articles across two languages and have shown a disciplinary variation of the structure. Ornella Ines Pezzini (2010) performed an analysis of rhetorical patterns of organizations and moves related to linguistics and translation studies abstracts and compared them with those proposed by Swales (1990). She identified the verb tenses and

voices preferably used in this specific genre. The corpus including 18 abstracts—6 written in English, 6 in Portuguese, and 6 being their translations into English—showed a sequence indicating IMRD sections that followed a determined function. The frequently used verb tense was simple present whereas active and passive voices occurred in identical frequency. Lack of personal pronouns referring to the writer prevailed in all abstracts, thus emphasizing the absence of the writer (Pezzini, 2010).

Martin (2003) performed a comparative study between English article abstracts and Spanish ones on the area of social sciences and identified some degree of divergence in the frequency of the structural units among Spanish writers. He believes it is related to socio-cultural differences and different expectations of target audiences. Connor (1996) also asserts that lack of success among non-native writers to publish the articles in international journals is due to the ignorance of cross-cultural differences throughout the structure of articles.

Medical papers are not an exception; Persian articles published in Persian medical journals would find only one chance to be put forward in the international medical discourse community through their translated abstracts. These condensed translated sections may exhort other members of the community to follow the rest of the papers as Bazerman (1984) remarks "the article's abstract serves as one further step in turning the article into an object, for the abstract considers the article as a whole and then makes a representation of it" (as cited in Swales, 1990, p. 179). The importance of abstract- writing by non- native English writers seems to have been highlighted in the studies which have recently focused on this issue (e.g., Hyland & Tse, 2005; Swales & Feak, 2009). The structure of the translated abstracts represents the competency of translator or author in academic writing, at least in this section.

On the other hand, since most international journals play a crucial role in reflecting the results of surveys thoroughly, it is assumed that they might be used as refereed for comparative studies. Skelton (1994) analyzed the move structure of 50 original medical papers published in *British Journal of General Practice* and identified 15 moves through the

IMRD (Introduction, Methods, Results and Discussion) sections. Next, he built up a template for structuring academic medical writing. The present study also attempted to select some articles from medical international journals for a comparative study of the moves employed.

Although a few studies have investigated the differences in research articles written by Iranian authors and native-English authors (Jalilifar, 2007 & 2009; Mahzari & Maftoon, 2007), to the best of the authors' knowledge, there is no investigation into the structure of abstract section of medical articles published in Persian journals -translated into English- and English ones, published in original English language journals.

The main purpose of this study is to investigate to what extent there is rhetorical variation between the English versions of medical research article abstracts written in Persian and published in Iranian journals archived in the scientific international website (i.e. http://indexcopernicus.com) and to compare them with those abstracts originally written in English for international journals in medical sciences. To this end, the macrostructure of these texts was analyzed comparatively based on Swales' model. Furthermore, the microstructure level was investigated to find the differences between the two groups of abstracts regarding verb tenses, voices, and personal pronouns.

2. Method

2.1 Selection of study materials

Articles for analysis were selected from the electronic archive, http://indexcopernicus.com in December, 2009. In total, 173 Iranian journals have been archived in this online database. Amongst Persian language medical journals, only those whose abstracts had been translated into English were chosen and 32 original research abstracts (after consulting a biostatistician) in medical sciences were selected by simple sampling method because the numbers of original research articles included in these journals were higher than 32. They were excerpted from the latest issue of each journal published till December,

2009. These translated abstracts formed the first group of materials (Appendix).

To get the same number of original articles, 9 international journals among 100 top journals in http://indexcopernicus.com were selected (by simple sampling method) available in December, 2009. Since the numbers of original research articles published on them were less than 32, more than 8 journals were selected. They formed the second group of data (Appendix).

Furthermore, all articles included in the study were original research articles and other submissions such as review articles, case reports, commentaries, etc. were excluded. Also, by using simple sampling method each medical journal and article had an equal probability of selection.

2.2. Method of analysis

The pattern of macrostructure of each abstract in both groups of data (translated versions and those originally written in English) was analyzed. The data are presented in tables of frequency and distribution of the structural units (Table 1). More detailed analysis in terms of rhetorical options following Swales (1990) and Martin (2003) which constitutes the moves of Introduction section adapted for abstract analysis was carried out. Frequency and distribution of these 3 moves—including establishing a territory, establishing a niche, and occupying the niche— were calculated (Table 2).

Besides move analysis, the Hallidayan approach (1985) was applied as another functional analysis to see how the three metafunctions (ideational, interpersonal, and textual) can play the crucial role by determining the verb tense, voice, and presence or absence of the writer which is indicated by personal pronouns or no personal pronouns on the Table 5. The aim here was to see whether the translated abstracts structurally and linguistically followed the model proposed for scientific writing (Swales 1990, Bhatia 1993, Halliday 1985). In addition, this model was followed by the original English abstracts published in

international journals as refereeds. The final step was to map the pattern of structural units applied to each group of data and recognize the differences and similarities existing between both groups. In the performed comparison, the 'p value' was obtained by Fisher Exact test and Chi Square test. Since $p \leq 0.05$, the difference was significant.

3. Results

Table 1 shows that the four basic structural units that typically constitute an RA (Research Article) abstract—that is IMRC—were present in all translated abstracts, but the rate was different in the original English abstracts. As shown in this Table, the frequency of the Introduction unit in abstracts originally written in English is 93.75% ($p = 1$). According to Martin (2003) and Swales (1990), the Introduction is one of the obligatory sections in an RA but two of the original abstracts started with the Methods and Results units. Moreover, in 10 abstracts in this group, the Methods unit had not been included. This represented a highly significant difference ($p=0.002$).

Table 1. Frequency of occurrence and distribution of structural units in the abstracts

	Original English Abstracts	Translated Abstracts
Introduction	30 (93.75%)	32 (100%)
Methods	23 (71.87%)	32 (100%)
Results	32 (100%)	32 (100%)
Conclusion	32 (100%)	32 (100%)

Table 2. Number of structural units in the abstracts

	Original English Abstracts	Translated Abstracts
4 units	21 (65.62%)	32 (100%)
3 units	10 (31.25%)	0
2 units	1 (3.12%)	0
1 units	0	0

The figures in Table 2 demonstrate that all translated abstracts presented the four basic structural units while the original abstracts consisted of four units in only 65.62%. This is mainly due to the high incidence of omission of the Methods unit. Although the most frequent of the linear sequence which these abstracts follow related to the IMRC, IRC sequence was also observed in 11 cases of original English abstracts. Furthermore, there is one case of MRC and even RC. In some cases, two structural units were inextricably linked so that identifying each as a separate unit is impossible. In the first two rows, a significant difference was observed (p=0.001).

Table 3 presents the frequency and distribution of the moves in the Introduction section. As can be seen, both groups of the corpora functioned differently in this unit. This table that is arranged on the basis of CARS (Create A Research Space) model (Swales, 1990) shows that in 87.5% of original English abstracts, move 1 or establishing a territory, was included whereas 78.12% of the translated abstracts included this move. Also, using move 2—establishing a niche—in original abstracts is more frequent in contrast to group one (translated abstracts). The important point here is a significant statistical difference of $p < 0.001$ in move 3 or occupying the niche which shows Iranian author's interest in this move. While move 1 is predominant in the original English abstracts, in the translated abstracts move 3 is the most frequent one. In this respect, there is a highly significant difference between the two groups ($p = 0.001$) while in frequency of moves 1 and 2 significant differences were not detected ($p > 0.05$).

Finally, Table 4 indicates the number of the moves applied in the Introduction unit of the abstracts. Despite the fact that 34.37% of the original abstracts used all three moves of the Introduction and the frequency of the translated abstracts is 12.5%, there is no statistically significant difference (p= 0.257).

Table 3. Frequency and distribution of moves in the Introduction section of the abstracts

	Original English Abstracts	Translated Abstracts
Move 1— Establishing a territory	28 (87.5%)	25 (78.12%)
Move 2— Establishing a niche	19 (59.37%)	8 (25%)
Move 3— Occupying the niche	17 (53.12%)	30 (93.75%)

Table 4. Number of the moves in the Introduction unit of the abstracts

	Original English Abstracts	Translated Abstracts
3 Moves	11 (34.37%)	6 (18.75%)
2 Moves	13 (40.62%)	17 (53.12%)
1 Move	6 (18.75%)	8 (25%)
0 Move	1 (3.12%)	0

Table 5. Language features in IMRC* (original English abstracts & translated abstracts)

	I		M		R		C	
	English	Iranian	English	Iranian	English	Iranian	English	Iranian
Present tense	20	2	3	0	11	0	22	18
Past tense	1	8	19	32	20	32	10	13
Past & present	9	22	0	0	1	0	0	1
Passive voice	1	6	7	31	0	0	3	4
Active & passive	7	0	5	1	5	11	1	7
Personal pronouns	18	3	11	2	14	0	9	6

* I MRC: I= Introduction M=Methods R=Results C=Conclusion

Table 5 shows that in 20 cases of abstracts originally written in English, present tense was predominant while only 2 cases of the translated abstracts used present form and in most cases both past and present were applied together. Regarding Table 3, the reason of the difference would be more understandable. Since move 3 was more preferable in the translated abstracts rather than the first two moves, then using past verbs in the wide range seems logical. In total, there was a highly significant difference (p= 0.000).

In the rate of using active voice, there is no remarkable difference between the two groups of abstracts except the larger number of cases with active and passive voices together in the group of original abstracts indicated in Table 5 that seems to be the reason of the difference (p= 0.004).

The third language item was personal pronouns which was highly more frequent in the original abstracts as compared with another group (Table 5). Despite the fact that 'we' and 'our' were used to indicate the current study in move 3—which was more frequent in the translated abstracts (Table 3)—, statistical analysis showed that they were more frequent in the original ones (p = 0.000).

As shown in Table 5, almost all the translated abstracts presented this unit by using past and passive forms of verbs without personal pronouns except one case that utilized both active and passive voice and two cases which used personal pronouns 'we'. In cotrast, in 22 original abstracts utilizing the Methods unit (Table 1), 19 cases of past tense and 7 cases of passive voice were observed; also, 50% of the group materials represented personal pronouns. Then a highly significant difference (p = 0.000) was seen in applying the voice of verbs and also in using personal pronouns (p = 0.000).

As the data revealed, the translated abstracts used past form of verbs accompanied with passive voice or passive and active voice together to represent this unit. Also, personal pronouns were not observed in this group. The important points, here, were 11 cases of present tense of verbs and 14 cases of personal pronouns in the abstracts that were originally

written in English and published in international journals (Table 5). In using verb tense and personal pronouns, there were highly significant differences ($p = 0.000$) between the two groups.

As shown below, the authors of the two groups of abstracts had a tendency to write the Conclusion by the present form of verbs in the active manner. At the same time in the translated abstracts, there were more cases of using past tense and both active and passive voice. Meanwhile, 6 cases of the translated abstracts expressed the conclusion by pronouns 'we' or 'our'; the occurrence of this element was more frequent than other units of this group. Statistically, figures depicted no significant differences in occurrence of the language features among the Conclusion units in the two groups of abstracts.

4. Discussion

Generally speaking, this study has shown that in terms of structural unit in scientific writing, Iranian abstracts observed the IMRC sequence in all the cases while English ones demonstrated IMRC, IRC, MRC and RC sequences.

The results of the present study can be compared with those obtained in previous studies such as Martin's (2003) survey on the grounds of social sciences abstracts. Although the 67.5% of the presence of the four structural units in English abstracts of his study is close to the 65.6% of this study, he identified only 25% of Spanish abstracts which included the four units, contrary to the 100% in the Iranian abstracts of the present study. The difference between English and Spanish abstracts might be related to a tendency to omit the Results unit in Spanish ones but here is the omission of the Methods unit in English ones. In the present survey, the occurrence of the Results and Conclusion of both groups were the same (100%). An interesting point is that omission of the methods occurred only in some unstructured abstracts which did not follow guidelines of journals such as *Cell* and *Genes & Development.* Other journals such as *The Lancet and NEJM* determined each unit in the abstract by the labels (structured abstracts): Background & Objective,

Method, Results, and Conclusion. It can be concluded that not only observing the instructions in the ICMJE (International Committee of Medical Journal Editors, 2006) —*Uniform Requirements for Manuscripts Submitted to Biomedical Journals: writing and editing for Biomedical publication*—but also preparing author's guideline could be regarded as a more completed instruction to highlight the information of a research article.

One of the principle purposes of this project was to find the rhetorical pattern of the Introduction move according to CARS (Creating a Research Space) model (Swales, 1990). In general terms, the Introduction was presented in all abstracts except in two cases of English abstracts which clearly started with the Methods and Results units, the two examples are as follow:

> Using a model of lethal oral infection with *Toxoplasma gondii*, we examined the fate of both induced and natural regulatory T (Treg) cells in the face of strong inflammatory responses occurring in a tolerogenic-prone environment. We found that during highly T helper 1 (Th1) cell-polarized mucosal immune responses, […]. Furthermore, we found that environmental cues provided by both local dendritic cells and effector T cells can induce the expression of T-bet transcription factor and IFN-γ by Treg cells. These data reveal a mechanism for Th1 cell pathogenicity that extends beyond their proinflammatory program to limit Treg cell survival (Immunity, Volume 31, Issue 5, 772-786, 09 November 2009).
>
> We report that infection of draining lymph nodes (DLNs) by *Salmonella typhimurium* results in the specific downregulation of the homeostatic chemokines CCL21 and CXCL13, which are essential for normal DLN organization and function. Our data reveal that

> the mechanism of this suppression is dependent on *S. typhimurium* LPS (sLPS)… (*Nature Medicine* 15, 1259 - 1265 (2009)).

The findings showed that three moves of the Introduction unit— that is establishing a territory, establishing a niche and occupying the niche— were rarely found together in the translated abstracts (18.75%), (see Table 4). The lowest frequency was related to move 2 and the most to move 3 in this group of abstracts. It seems that this issue was not due to the lack of knowledge about RA organization. Rather it might be regarded as an effort to write a brief abstract. Mahzari and Maftoon's (2007) survey showed that Iranian authors were aware of these 3 moves and their steps in the Introduction unit. They analyzed and compared only the Introduction Section of Persian medical articles and American-English ones. Also, the results are in agreement with Martin's study (2003), which concluded that "the fundamental and obligatory communicative category in the Introduction unit of the abstract is move 3 where the writers introduce their current research" (2003, p.31). Also Skelton (1994) considered four moves in the Introduction unit, and identified 70% in frequency of establishing a gap and 100% in stating writer's aim. As was observed in original English abstracts, move 3 had the lowest frequency of occurrence while move 1 had the most.

Halliday (1985, p. xiii) views language as a "social semiotic resource" that people use to perform their purposes by expressing meaning in context. This approach identifies the three semantic metafunctions which correspond to ideational, interpersonal, and textual meanings.

The ideational metafunction is concerned with understanding the environment as relates to the way in which human experience is construed (Halliday & Matthissen 2004) and includes the experiential and logical subdivisions. According to Eggins (2004, p. 229), experiential meaning "is expressed thorough the system of transitivity, with the choice of process implicating associated participant's roles and configurations". Also textual metafunction describes how a message

would be organized in source language and target language. On the other hand, Halliday identifies text as the unit of analysis and the study of the text is possible through examining elements of the lexicogrammar (1985). Thus, the authors of the present research believe that the linguistic analysis in the aspects of *verb tense* and *voice* would benefit the comparative studies of the translated texts and original English ones.

The verb tense mostly used in the translated abstracts was the past simple in the Methods and Results units, past and present in the Introduction as well as present in the conclusion. In comparison with the abstracts originally written in English, using simple present form of verbs drew attention in the Introduction (Table 5). Seemingly, more recurrence of move 1 and move 2 caused the difference between the two groups of abstracts in this item. As cited in Swales (1990) a similar pattern was observed by Heslot (1982) , i.e.the Methods and Results units were almost entirely dominated by the use of simple past tense while the Introduction and Conclusion units contained a combination of past and present tenses mostly in the present tense. Martin (2003) also observed that the verb tense of the Introduction is past and present, the Methods and Results were past and the conclusion written in present tense in the Introductions of abstracts. He asserted that a slight variation was observed in the Results section of Spanish abstracts.

The observation concerning voice indicated that the two groups of the corpora functioned similarly in expressing the Introduction, Results and Conclusion in active manner but a significant difference could be seen in the Methods namely passive in the translated abstracts and active, passive, and a combination of active and passive manner respectively in the original English ones (Table 5). More extensive use of the passive constructions was observed in the Methods section than in the Introduction, Results and discussion in the previous studies on medical articles (Fryer 2007; Heslot 1982 in Swales 1990, pp. 136-137). But in Martin's (2003), passive constructions were detected in the Methods and Results. It may be said that in social science articles, the Results unit is different from other fields and authors try to express the Results in a

more thematized way. In general, using passive form of verbs is a struggle to make a text notable (Eggins, 2004), and tentatively that is a reason for passivization in scientific writing. Passivization is done to focus on the part of the massage which the speaker wishes to emphasize (Halliday, 1981).

The interpersonal metafunction represents "language as action" (Halliday & Matthissen 2004, p. 30) and mainly realized in the level of clause by mood, modality, and evaluation. In fact, interpersonal meaning deals with interaction between writer and reader (here both writer and reader together establish the discourse community) and reveals the speech roles in a communication.

In terms of personal pronouns, the results of this study show that the pronouns 'we' and 'our' occurred throughout the three structural units (IMR) of international English abstracts with a highly significant difference ($p = 0.000$) against the translated abstracts (Table 5). Fryer (2007) also identified the pronouns 'we' and 'our' in his study through the four sections (IMRD) with a more frequency in the Methods and Discussion.

According to Fryer (2007, p. 120) "written scientific discourse has been described as 'depersonalized' (Halliday 1993) and this is frequently attributed to a relative lack of personal pronouns and to extensive voice of passive voice". Since an extensive use of the personal pronouns was seen in original English abstracts, it may be related to the guidelines existing in international journals for authors. On the other hand, these refereed international journals on medical sciences usually cover a wide range of audiences who wish to publish their articles in them and therefore they follow their frameworks.

5. Conclusion

The above discussion seems to mean that the translated abstracts published in the Iranian journals more closely reflect the structural and linguistic conventions of writing research articles. Since almost all international medical journals refer the authors to ICMJE instruction for submission of the articles, and ICMJE offers IMRC sequence to write an

RA, then journal guidelines cannot be an appropriate reason for the existing structural variation among the original English abstracts.

The findings of the present study confirmed that the two groups of abstract structures were different but despite the expectations the pattern of structural units due to the translated abstracts appeared to have adapted the 'functional views' (Halliday 1985, Swales 1990, Bhatia 1993).

Tentatively, the superiority of the translated abstracts could be related to the following factors: Exposing Iranian specialists in medical sciences to instruction of essay writing; using knowledgable translators who are experienced in academic writing and in medical sciences simultanously; providing guidelines by journals on the basis of ICMJE instruction; efforts made by the scholors in the medical sciences to solve the problem of academic isolation, and strong motivation to being accepted in the discourse community.

References

Bhatia, V.K. (1993). *Analyzing genre: language use in professional settings*. London: Longman

Connor, U. (1996). *Contrastive Rhetoric: cross- cultural aspects of second language writing.* Cambridge: Cambridge University Press.

Eggins, S. (2004). *An Introduction to Systemic Functional Linguistic* (2nd Ed.). London: Continuum International Publishing Group Ltd.

Fryer, D. L. (2007). *Multidimentional genre- based discourse of a corpus of English- language medical research articles*. Unpublished Master's Thesis. Faculty of Humanities, University of Oslo, Norway.

Halliday, M. A. K. (1985). *An Introduction to Functional Grammar.* London: Edward Arnold.

Halliday, M. A. K. (1981). *Linguistic Function and Literary Style: Inquiry into the Language of William Golding's the Inheritors.* London & New York: Methuen.

Halliday, M.A.K., & Matheissen, C. M. I. M. (2004). *An Introduction to Functional Grammar* (3rd Ed.). London: Arnold.

Hyland, K. (2002). Genre: Language, Context and Literacy. *Annual Review of Applied Linguistics,* 22: 113- 135.

Hyland, K. & Tse, p. (2005). Hooking the reader: a corpus study of evaluative *that* in abstracts. *English for Specific Purposes*, 24: 123-139.

ICMJE (International Committee of Medical Journal Editors) (2006). *Uniform Requirements for Manuscripts Submitted to Biomedical Journals: writing and editing for Biomedical publication.* Philadelphia: ICMJE. Rettrieved May, 2008, from www.icmje.org/jrnlist.html

Jalilifar, A. (2007). All the way through the hedges:A corpus analysis of hedges in research articles. *Journal of Social Science and Humanities of Shiraz University*, 26: 23- 47.

Jalilifar, A. (2009). Thematic development in English and translated academic texts. *Journal of Language &Translation* ,10- 1: 81- 111.

Kanoksilapatham, B. (2007). Writing scientific research articles in Thai and English: Similarities and differences. *Sitpakorn University InternationalJournal* , 7: 172- 203.

Mahzari, A. & Maftoon, P. (2007). A contrastive study of the introduction section of English and Persian medical research articles. *Iranian Journals Of Language Studies,* V. 1, 3: 201- 214.

Martin, P. M. (2003). A genre analysis of English and Spanish research paper abstracts in experimental social sciences. *English for Specific Purposes,* 22: 25-43.

Pezzini, I. O. (n.d). Genre analysis and translation – an investigation of abstracts of research articles in two languages. Rettrieved May 16, 2010, from http://www.periodicos.ufsc.br/index.php/traducao/article/viewFile/6201/5758

Skelton, J. (1994). Analysis of the structure of original research papers: An aid to writing original papers for publication. *British Journal of General Practice,* October: 455- 459.

Swales, M. J. (1990). *Genre analysis: English in academic and research settings.* New York: Cambridge University Press

Swales, M.J. & Feak, B. C. (2007). *Academic writing for graduate students* (2nd Ed.). Ann Arbor: Univ. of Michigan Press.

Swales, M.J. & Feak, B. C. (2009). *Abstracts and the writing of abstracts.* University of Michigan Press.

Appendix

A full list of journals and some information concerning them is provided below in Tables *A* and *B*.

Table A List of Iranian Journals

Iranian Journals Title	Number & Date	IC Value	Number of Selected Articles
Iranian journal of Psychiatry and Clinical Psychology	15 (2); 2009	3.00	4
Khoon: Sci J Iranian Blood Transfuse Org	6 (3); 2009	4.88	4
Koomesh	11 (1); 2009	3.80	4
Scientific Journal of Kurdistan University of Medical Sciences	14 (52); 2009	3.00	4
Majalleh Elmi Pezeshki: SMJ	8 (1); 2009	4.81	4
Modares: MJMS	12 (1); 2009	3.00	4
Journal of Rafsanjan University of Medical Sciences	8 (2); 2009	5.63	4
Journal of Shahrekord University of Medical Sciences	11 (3); 2009	4.78	4

Table B List of International Journals

International Journals Title	Number & Date	IC Value	Number of Selected Articles
Cell	139 (5); 2009	284.65	4
Genes & Development	23 (23); 2009	151.74	4
Immunity	31 (5); 2009	183.33	4
Journal of the American Medical Association	302 (21); 2009	212.75	3
Nature Medicine	15 (25); 2009	286.19	4
Science	326 (5958)	254.88	2
The Journal of Clinical Investigation: JCI	119 (12); 2009	151.38	4
The Lancet: LAN	374 (9705); 2009	251.98	3
The New England Journal of Medicine: NEJM	361 (23); 2009	538.19	4